




# Nature Recycles, Too

## Goals:

-  To help children understand that nature recycles its resources and we should too because we are part of nature.
-  To observe some of nature's recyclers where they live and work.
-  To observe how nature's recyclers use things over again in nature.

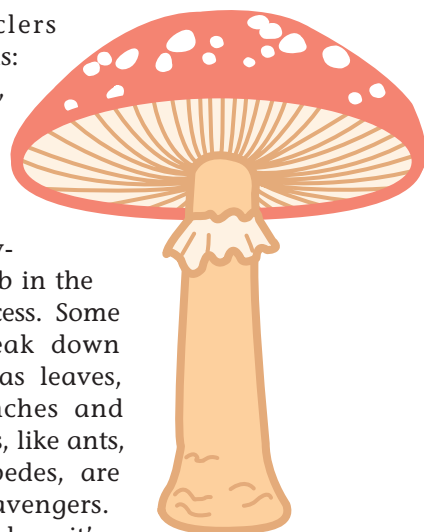
## Background:

Did you know that nature recycles? Nature has its own clean-up crew. You can introduce your children to *nature's recyclers* and encourage them to be like nature and recycle, too! Searching for nature's recyclers is easy, although you may have to get down on your hands and knees to find them. You do not need to go to a park or woods – you can find nature's recyclers in your own yard.

The life cycle of a tree provides us with a good example of recycling in nature. Leaves fall from trees and form leaf litter on the forest floor. Leaf litter serves as a habitat for a variety of nature's recyclers. Nature's recyclers are decomposers; they *decompose* or break down leaf litter into *nutrient* components that will return to the soil and be used again to fertilize trees. The nutrients taken into the tree eventually help to form new leaves again.

Nature's recyclers come in many forms:

snails, slugs, beetles, sow bugs, earthworms, millipedes, fungi, mushrooms, lichens and microbes. Each "recycler" has its own job in the decomposition process. Some recyclers help break down plant tissue such as leaves, dead plants, branches and logs. Other recyclers, like ants, spiders and centipedes, are meat-eaters or scavengers. They like to work where it's dark and moist. Leaf litter provides ideal conditions for decomposition to take place.



Try to observe nature's recyclers in their natural setting during the warmer months of the year. Don't disturb their homes any more than is absolutely necessary. Handle them with care, some may bite!



Even if bugs and worms may seem yucky to you, remember they are exciting and useful creatures. They set an important example for all of us to follow. Just as nature efficiently recycles its natural resources, we need to recycle to help preserve our natural resources, too.

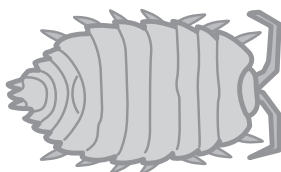
## In Search of Nature's Recyclers

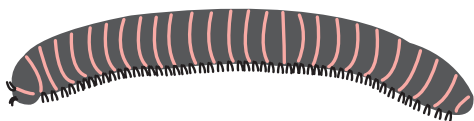
### Materials:

Outdoor area (yard, park, garden, woods)  
Clear viewing container with air holes (see "Going Beyond" and/or "Critter Cabin" activity in **Wee Crafts** for ideas)  
Hand-held garden spades or old spoons (optional)  
Hand lens (optional)




### Preparation:

-  Check out areas you plan to visit to make sure you can easily find some of nature's recyclers. You can "plant" a log or board directly on the soil several days ahead of time to draw insects to the moist, dark place.
-  See the activity, "Nature's Recyclers Storyboard," for pictures of some of the nature's recyclers you will be looking for.





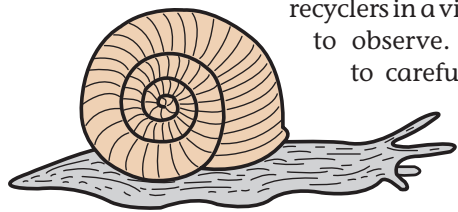
## Procedure:

1. Assemble a small group of children and ask:
  -  What happens to all the leaves and branches that fall to the ground?
  -  Who cleans up the forests and fields?
  -  Would you like to find out who cleans up the fallen branches and leaves?










Explain to them that the creatures that help clean up the forest are called “nature’s recyclers.”

2. Prepare the children for a walk outside by telling them that they are going to become explorers and hunt for nature’s recyclers. They will search for them and try to find where these creatures live and work. Everyone can be “armed” with a hand lens and viewing container if you have them.
3. Go outside and sneak up on the sites where you might expect to find nature’s recyclers. Because nature’s recyclers and the places they live are so small, your explorers may have to take turns looking at each site. Remind them that they will be looking into creatures’ homes, so everyone must be very careful, respectful, touch gently and put “roofs” back in place.

4. Consider capturing and placing some of the nature’s recyclers in a viewing container to observe. Just remember to carefully return them to their homes whenever everyone is done looking at them.

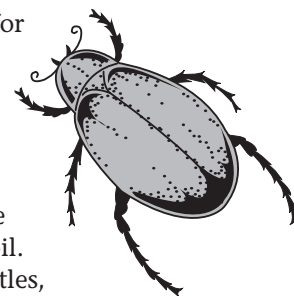


5. Visit some or all of the following places, taking a few minutes to discuss what you see and feel. Encourage your explorers to smell decaying wood, wet leaves and dirt along the way. When you find some of nature’s recyclers, ask your explorers question like:

-  Is this a plant or an animal?
-  What is it called?
-  What color is it?
-  How many legs does it have?
-  Does it move fast or slow?
-  How does it feel? (touch gently – worms, slugs, mushrooms and lichens only)
-  How many are living together?
-  Why do they live here?
-  What are they eating?




## Old Log

Roll over an old log. Look for decaying or rotting wood. Have children feel the difference between the hard wood and the soft pulp. Nature’s recyclers change the old, hard wood into very soft, loose pieces that mix with the soil. Look for worms, slugs, beetles, sow bugs, millipedes and mushrooms. Return the log to where it belongs when everyone is done looking into this “home.”



## Tree Bark (on a dead log)

On the outside surface of the bark, look for mushrooms, lichen and moss growing. Slowly pull back a section of bark on a decaying log and look for beetles, termites and ants. Observe the creatures you see. Compare the different textures of wood. In addition to the questions listed above, ask:

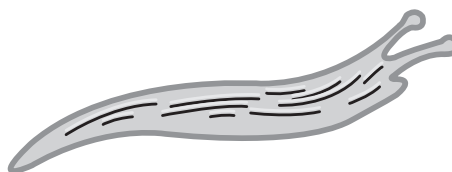
-  Do you see any holes in the wood where nature’s recyclers were chomping?
-  Is some of the wood very loose like sawdust?
-  How do you think the wood got like this?

## Large Rock

Roll over a large rock. Observe the texture of the ground underneath. Feel how moist it is. Look for slugs, snails, worms and sow bugs. Also look for holes and tunnels leading underground. Roll the rock back into the place when everyone is done observing.






## Underground

Have small children dig in soil, sand or wood chips with small garden spades or old spoons. Look for worms, millipedes and sow bugs. When your explorers find some of nature’s recyclers, place them in a clear observation container for all to see. Talk about what they look like. The job of worms and many of nature’s recyclers is to dig through the soil and make it soft and loose. Worms munch on dead leaves and other small dead things. They add nutrients to the soil. Be sure to return all creatures back to their homes and fill in any holes you made.







## Leaf Litter

Digging through a pile of decaying leaves or grass clippings will also reveal several of nature's recyclers. Look for mushrooms, worms, beetles and millipedes. Compare the texture of a green leaf and an older decaying one. Ask:

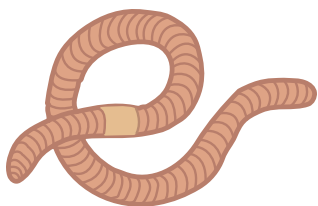
-  What color is the older leaf?
-  Is it wet or dry?
-  How does it smell?
-  Can you see any signs of chomping and chewing by nature's recyclers?
-  Which of nature's recyclers are hard at work here?

6. Following your exploration, review with the children what they saw. Ask some of the following questions:

-  Where do some of nature's recyclers live?
-  What do some of them look like?
-  What are their jobs?
-  How are wood, soil and leaves changed by nature's recyclers?

## Going Beyond:

-  Use deli containers with clear lids for small holding and viewing cages. Return nature's recyclers to their homes when you are done. Keep the containers in a science area for future use. (For another variation, see "Critter Cabin" in **Wee Crafts in Wee Recyclers Online Resources**)
-  Make leaves and sticks out of scrap paper and have your children imitate how nature's recyclers tear these apart or break these down into nutrients. Also, have them imitate ants scurrying, sow bugs curling up, worms wiggling and slugs moving very slowly.
-  Collect sow bugs, a few leaves and sticks. Place them all in a closed container with a few drops of water. Punch air holes in the lid. Observe for a few days and then release the sow bugs.
-  Make egg carton insects (see **Wee Crafts in Wee Recyclers Online Resources**) or create your own nature's recyclers using recyclable materials. Encourage children to use their imaginations to come up with ideas for eyes, legs and antennae.






## Nature's Recyclers Storyboard

### Materials:



Flannel Board  
Nature's Recyclers Storyboard cut-outs\*  
Felt, flannel or Velcro material for cut-out backing  
"Nature Recycles" poster\*  
Nature Recycles (take-home)\*

\* Found in **Wee Recyclers Online Resources**, <http://dnr.wi.gov/eeek/teacher/weerecyclers.htm>

### Preparation:

-  Print and cut out the pictures for Nature's Recyclers Storyboard. Glue pieces of felt, flannel or Velcro materials to the backs of each picture so they will adhere to the flannel board. Set up a flannel board and follow the diagram for picture placement.
-  Prior to this lesson, take children outside for a walk to learn about the parts of a tree: leaves, branches, trunk, roots and bark. Help your children observe some of nature's recyclers before discussing them in this lesson. See the activity, "In Search of Nature's Recyclers."
-  Consider the age and comprehension level of your children when planning for this activity. Not all of the material may be appropriate for all age levels.

### Procedure:

1. Tell your children that in the spring and summer, trees grow new branches and green leaves. In the fall, many trees get ready for winter by stopping growth and shedding their leaves. Where do all the leaves go? What happens to twigs and branches when they fall from trees? If possible, go outside and observe new leaves growing in the spring or leaves dropping in the fall.
2. Explain to your children that we are going to talk about what happens to leaves when a tree is done using them. Explain that nature uses leaves again. Nature has its own recyclers.
3. Begin the activity in one of the following ways:
  -  To evoke interest, read the poem, "Nature Recycles" first. Then, using the cut-outs, go back and work through the narrative for discussion.
  -  Work through the narrative, placing the cut-outs on the flannel board as you discuss them with the children. Use the poem, "Nature Recycles" for review and reinforcement.

♻️ For very young children, use the flannel board cut-outs along with the poem, "Nature Recycles." Discuss things that children question or show an interest in.

4. Remind the group that nature's recyclers are exciting and important creatures even though bugs and worms may seem yucky.

### **Narrative for Discussion:**

- a. Here is a tree. Let's look at the different parts. Here are the roots, the trunk, the branches and leaves. This covering is called bark – it protects the inside of the tree. Ask:

♻️ What color is the bark?

♻️ What color are the leaves?

♻️ In which season do leaves turn red, orange and brown?

- b. In the fall, the weather turns cooler and the leaves become dry and die. They turn from green to red, yellow or brown. The tree can't use its leaves anymore, so the tree throws its leaves away. Ask:

Where does the tree throw its unwanted leaves?

Do you think this is littering?

- c. There are no trash cans in nature. Plants and trees drop their leaves on the ground when they are done using them. The leaves that collect on the forest floor are called *leaf litter*. Ask:

♻️ What happens to the leaves?

♻️ Who cleans up the leaves?

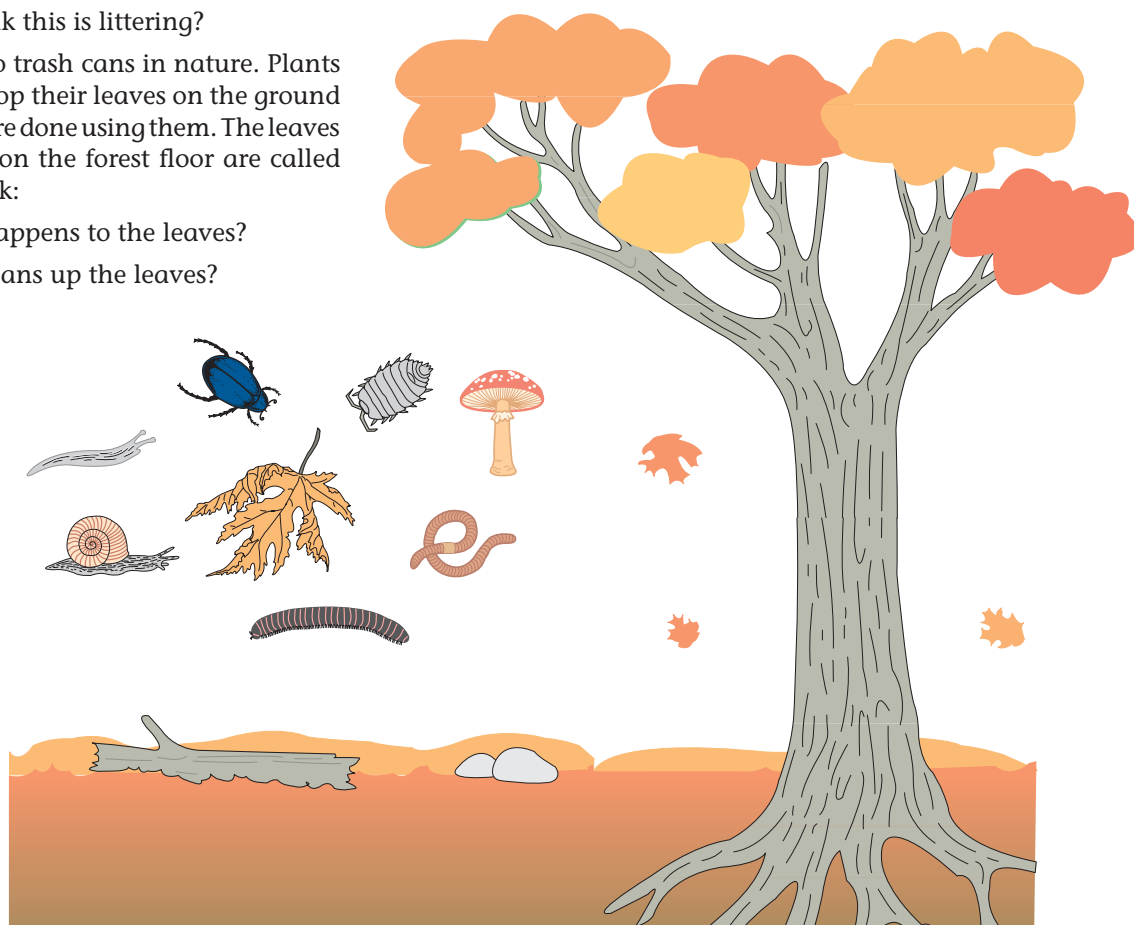
- d. Fortunately, nature has its own clean-up crew to take care of the leaf litter. They are called "nature's recyclers." What would the world be like if nature didn't have a clean-up crew? Nature's recyclers have a very important job. They take the leaves from plants and trees and break them up into teeny-weeny pieces called nutrients which they put back into the soil. Ask:

♻️ What are nutrients?


♻️ Has anyone ever heard that word before?

- e. Nutrients are like vitamins. Plants and trees need air, water, sunlight and nutrients in order to grow big and strong, just like children need air, water and food to grow big and strong. Nutrients are found in living and dead things. They are so small we cannot even see them. Nature's recyclers take the nutrients out of dead plants and leaves and put them back into the soil to be used again. Ask:

♻️ Do you want to meet some of nature's recyclers?



- f. We'll have to dig into the ground, turn over rocks and roll over logs to find them. Nature's recyclers like to live and work where it is dark and moist. Ask:

 Can you help me find them? (Pretend with children to dig in the ground, turn over a rock or roll over a log.)

**LOOK, WE FOUND SOME!** (Bring out the cut-outs of nature's recyclers.)

This is a mushroom. It's a plant that is not green. It grows on the ground or on trees, rocks and logs. Its "roots" (known as mycelia) break down leaf litter and suck out the good nutrients to put back into the soil. Mushrooms help keep the woods clean.

This is a slug and this is a snail. What's the difference between a slug and a snail? How are they the same? (They're almost the same except a slug doesn't have a shell.) Their job is to clean the floors of gardens, lawns, forests and lakes. Ask: Do you know what the snail uses its shell for? Have you ever felt a snail or slug?

Here is a creature you might know. Who can tell me what it is? This is a worm. Worms dig tunnels through the ground and around tree roots. They also chew up leaf litter as they dig through the ground. Ask: Can anyone show me how worms wiggle through the ground?

Here is a beetle. It has a very hard shell and sharp pinchers to cut leaves. It chomps apart the leaves that fall to the ground. Ask: What color is this beetle? (Sometimes beetles are reddish-brown or green.)

This is a sow bug. It likes to hide in dark places. You can find it almost anywhere, including in your garden and at the park. It munches on leaf litter, too.


This is a millipede. It crunches up dead plants to keep the ground neat. It likes to hide and can move very quickly. You would, too, if you had all those legs! Ask: Can you count how many legs it has? (Not necessarily a thousand.)

These are just some of nature's recyclers. They work very hard to clean up the leaf litter that the plants and trees drop on the ground. As slugs, worms, beetles, sow bugs and millipedes munch, crunch, chomp and chew through the leaf litter, they break the leaves into tiny pieces. Have your children make crunching and munching sounds. Nature's recyclers "poop" out what they can't digest. Their "poop" is the remains of leaves and contains nutrients.

- g. Now the tiny leaf pieces or nutrients can be put back into the soil. (Pretend to do so.) The plants and trees will use the nutrients again. Remember, nutrients are food the tree needs to make new wood, strong


branches and new leaves. In the spring, nutrients are sucked out of the soil by the tree's roots and pulled up through the trunk. They travel through the branches and out to the end of the twigs where new leaves are made. Ask:


 Do you want to meet some of nature's recyclers?

 Can you pretend your fingers are roots and you are sucking up the nutrients from the soil?

- h. Without nature's recyclers, leaf litter would not be cleaned up. What a mess we would have! And without nature's recyclers, no nutrients would be put back into the soil. Ask:


 Do you think trees can live without nutrients?


 What if there were no nature's recyclers to put nutrients back into the soil?


 What do you think would happen to all of the plants and trees?

- i. So you can see that nature recycles things that it doesn't need or want anymore. Nature's recyclers take leaf litter and break it down, changing it into nutrients that can be used again. We should be like nature's recyclers, too. We can recycle and reuse many things that people make. By recycling, we use things like paper, glass, metal and plastic over and over again. We also can help keep the earth clean by picking up our own litter and putting trash only where it belongs. Wee Recyclers and nature's recyclers can work together.


### Going Beyond:

 Go on a hike to look for nature's recyclers outdoors. See the activity, "In Search of Nature's Recyclers."

 Print and copy the poem, "Nature Recycles" for each child to take home and share with family members. (Poem found in the **Wee Recyclers Online Resources**.)

 Study nature's recyclers inside by collecting some forest floor litter and placing it over soil in a terrarium. Keep the leaves damp but not too wet. Place a screen over the terrarium and watch for nature's recyclers.

 Bring in and show children leaves in different stages of decomposition.

 Set up a vermicomposting bin in the classroom. For instructions, visit the EEK! Environmental Education for Kids web site, [www.dnr.wi.gov/eeek](http://www.dnr.wi.gov/eeek) and keyword search "composting with worms."